Capitol Lake/Deschutes River Estuary Restoration Feasibility Study

Questions and answers:

1. **Why do you want to study this? Is there a problem?**
   Capitol Lake is in trouble. Sediment coming down the Deschutes River is turning the lake into a freshwater marsh. The lake is on the state's list of impaired water bodies for fecal coliform bacteria, a human health hazard, and phosphorus, a nutrient that increases algae blooms. Capitol Lake is also polluted with stormwater runoff. Noxious weeds, such as Eurasian Water-Milfoil and Purple Loosestrife infest the lake and shoreline.

2. **How would an estuary feasibility study help?**
   The goal of the study is to gather objective, scientifically sound data on the possibility of restoring a naturally functioning estuary within the confines of a modern urban setting. An estuary, if feasible, may eliminate some of the current problems associated with maintaining a man-made lake. We have more than 50 years of data on the Capitol Lake environment, but virtually nothing on how an estuary might function again in this location. The study would identify the costs and benefits of such a restoration and allow for a comparison of the advantages and disadvantages of maintaining the lake. The study will provide information needed to make an impartial decision about what is best for the long-term management of Capitol Lake.

3. **What is an estuary?**
   It is an area where freshwater from a river or stream mixes with the saltwater of the ocean. Estuaries are influenced by tides, but are mostly protected from large waves and intense storms. In a natural condition, estuaries are some of the most biologically productive areas on the earth. Many species of birds, fish and mammals live, feed and reproduce in estuaries. Estuaries and adjacent wetlands provide flood control and filter out pollutants and sediments. To learn more about estuaries go to:
   http://www.epa.gov/owow/estuaries/about1.htm

4. **Why not restore the estuary by opening up the gates of the Capitol Lake Dam?**
   The 5th Avenue Bridge, Deschutes Parkway and other infrastructure around the lake are not built to withstand regular tidal action. Also, it may not be physically possible to move the necessary volume of water present during a tidal cycle through the present opening – about 85 feet – of the Capitol Lake Dam. The estuary was already highly modified by 1951 and prior to filling and damming, it is estimated that the opening was about 2,000 feet wide.

5. **What would be studied?**
   - Examine other Puget Sound estuaries to determine how they function.
   - Survey the bottom of the lake.
   - Determine where sediment would go if an estuary was restored. What would be the impacts of sediment moving from the lake into Budd Inlet?
   - What type of estuary will form, and how long will it take?

- Develop possible design alternatives for a new estuary. A large portion of the original Deschutes River estuary has been filled.
- Side-by-side cost/benefit analysis of restoring the estuary, maintaining a man-made lake, or allowing the lake to continue to fill and change into a freshwater marsh.
- Independent technical review of all aspects of the study.

6. How much would a study cost?

About $900,000

7. Who would pay for the study?

Proposed funding will come from a variety of sources, including federal and state grants, a one-time appropriation by the Legislature, state and local government operating budgets, and more.

8. Would an estuary cause odor problems?

A restored Deschutes River estuary would most likely smell no different than any other area adjacent to Puget Sound. The unpleasant odors coming from the original estuary, reported by some long-time residents and in historical accounts, may have been due to raw sewage and other untreated waste. Wastewater produced within the watershed is now treated before discharge into Puget Sound or handled by on-site septic systems.

9. How long would a study take?

About 18 to 24 months.

10. Why not keep Capitol Lake the way it is?

About 35,000 cubic yards of sediment pour into Capitol Lake from the Deschutes River every year. About 700,000 cubic yards have been deposited since the lake was last dredged in 1986 – a pile the size of a football field filled to more than 400 feet high. To keep Capitol Lake from becoming a marsh, the accumulated sediment must be removed and annual dredging will be necessary. The estimated cost for the dredging is about $1 million to $1.5 million per year. The cost of restoring an estuary will be developed as part of the study.

11. With all these problems, is Capitol Lake dying?

The entire Deschutes River/Capitol Lake watershed, including Budd Inlet, has water quality problems, but the lake is not biologically “dead” or dying. In fact, the lake provides valuable habitat for many species of wildlife. For example, during the winter, as many as 10,000 ducks will feed at Capitol Lake each day, according to biologist. In the summer, the lake is a regular nightly feeding spot for hundreds, perhaps thousands, of bats, reports an area bat researcher. The local chapter of the National Audubon Society told the Olympian newspaper that “Capitol Lake is a great bird watching spot.” Bald eagles have nested and successfully raised brood along the lake for several years now. The lake also supports a healthy run of hatchery salmon and native sea-run cutthroat trout. General Administration and our lake co-managers are continuously working to improve the habitat. In the spring of 2004, more than 8,000 native trees and shrubs were planted along the shores of the Interpretive Center Trail during a community planting event.

More questions, comments? Please contact:

Perry J Lund, Project Coordinator
360-407-7260
plun461@ecy.wa.gov